

SNC 2D **STSE Case Study: Green Chemistry**

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“A relatively new field of chemistry, called green chemistry, focuses on designing reactions that produce less waste. These reactions can be used for drug manufacturing and other industrial processes. Green chemistry also focuses on reducing or eliminating toxic substances that are used in or produced by many chemical reactions.” (McGraw-Hill Ryerson, 2009)

1. **Individual Task** Conduct on-line research to identify the 12 principles of green chemistry.

Twelve Principles of Green Chemistry:

Principle	Description
Reference (in APA format):	

2. **Group Task (in pairs or trios):** Choose and research a company that is following one of the green principles. Here are some questions to guide you in your research:
- What does the company sell/manufacture?
 - How has this company used green chemistry?
 - Which green principle(s) has this company followed?
 - Has the company been more or less successful since introducing green chemistry?
 - Are there any particular products/processes that the company is particular proud of, with respect to green chemistry?
 - What was the cost to implement the green principle/process?

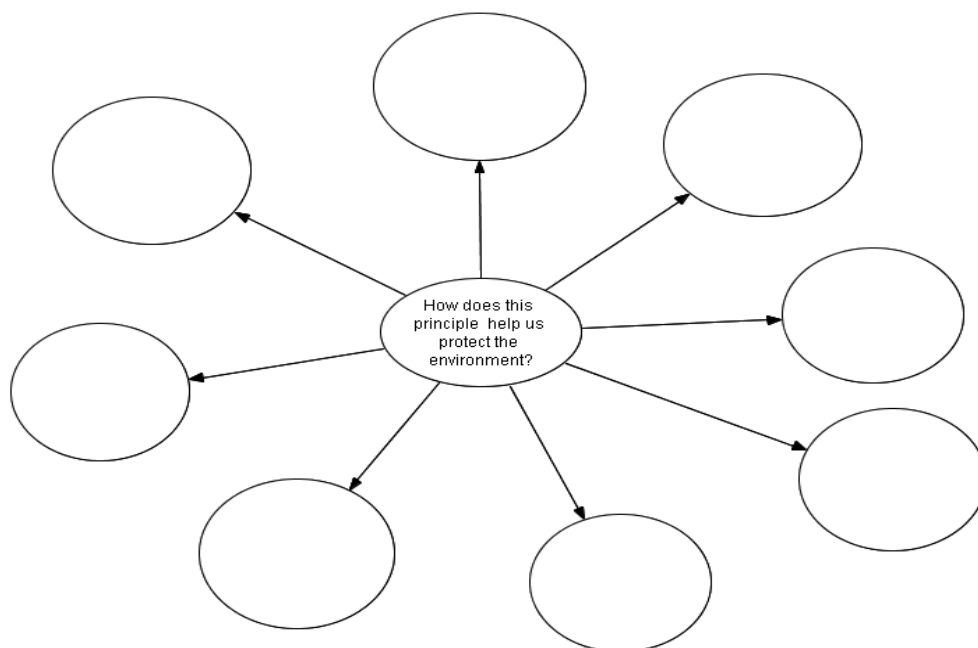
An Example:

Interface Global (<http://www.interfaceglobal.com/>)

- see the CEO (Ray Anderson) speak at

http://www.ted.com/index.php/talks/ray_anderson_on_the_business_logic_of_sustainability.html

3. **Individual Task** Complete the following mind map. (There may be a need for more or less bubbles to include information.)



4. **Group Task (in the same group as for #2):** Prepare a 5-10 minute oral & visual (poster, slideshow, video, etc.) presentation highlighting why green chemistry is important and why it was worth the investment for your chosen company. APA references must be included.

Rubric

CRITERIA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
Knowledge				
Understanding	-limited understanding of concepts	-partial understanding of concepts	-complete understanding of concepts	-insightful understanding of concepts
Information	-little information presented with limited usefulness to topic	-some information presented useful to topic	-information provided useful to topic	-a great deal of information presented relevant to topic
Application				
Green Chemistry	-does not identify the green chemistry principle(s) followed -does not state the cost of implementing the process	-identifies green chemistry principle(s) followed -does not state the cost of implementing the process	-identifies the green chemistry principle(s) followed -states the cost of implementing the process	-identifies the green chemistry principle(s) followed in detail -states the cost of implementing the process with thorough analysis
Communication				
Resources	Few references provided; no citations in presentation	Some references and citations provided in presentation	Numerous references provided from a variety of sources; citations included in presentation	Many references provided from a variety of sources; citations provided for all text and graphics
APA style	-no references or citations provided	-some references and citations provided; incorrect style	-references and citations provided using correct style	-many references and citations provided using correct style
Presentation	-communicates information and ideas with limited clarity and precision; speaks quietly and is difficult to understand	-communicates information and ideas with some clarity and precision; speaker can be understood	-communicates information and ideas with considerable clarity and precision; speech is clear and at a good pace	-communicates information and ideas clearly and precisely; speaks clearly and takes the time to make sure audience understands the message
Eye contact	-no eye contact made; reads from notes	-some eye contact made; often reads from notes	-eye contact made; uses notes for reference	-makes eye contact; rarely reads from notes
Interest level	-presentation shows no creative aspects and does not maintain audience interest	-presentation shows some creative aspects and audience interest is low	-presentation shows creative aspects and maintains audience interest	-presentation shows many creative aspects and maintains audience interest